

PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY
HELD AT PHILADELPHIA FOR PROMOTING USEFUL KNOWLEDGE.

VOL. XXXI.

JULY TO DECEMBER, 1893.

No. 142.

Stated Meeting, September 1, 1893.

Prof. ALBERT H. SMYTH in the Chair.

Correspondence was submitted as follows:

Acknowledgments of election to membership were received from

Prof. Isaac H. Hall, New York.

Gen. Isaac J. Wistar, Philadelphia.

Mr. Edward Vincent d'Invilliers, Philadelphia.

Prof. Waterman L. Hewitt, Ithaca, N. Y.

Prof. Justin Winsor, Cambridge, Mass.

Prof. William Hyde Appleton, Swarthmore, Pa.

President James E. Rhoads, Bryn Mawr, Pa.

An invitation from the New Haven Colony Historical Society, New Haven, Conn., to be present at the dedication of the new building erected as a memorial to James E. and Caroline A. English, to take place September 28, 1893, at 8 P.M.

A circular from the Congrès International de Zoologie, Paris, relative to the prizes which will be awarded by the Congrès.

A circular from the Anthropological Society of Washington in regard to the Citizenship Prizes to be awarded for essays on specified subjects.

A letter from the U. S. Coast and Geodetic Survey, Washington, D. C., requesting certain numbers of the Society's Proceedings and Transactions to complete their set.

The following communication was read and referred to the Curators:

AMERICAN HISTORICAL ASSOCIATION, SMITHSONIAN INSTITUTION,
WASHINGTON, D. C., August 2, 1893.

THE SECRETARY OF THE AMERICAN PHILOSOPHICAL SOCIETY,
PHILADELPHIA, PA. :

Dear Sir :—I am desirous of obtaining for the use of the American Historical Association definite information regarding the collections of the various Historical Societies in the United States. I have been informed that under the supervision of your Society an interesting collection of historical objects has grown up. May I ask your assistance in furnishing me with a few lines explaining the scope of the collection, with a little history of its growth, and the names of those who have been and are now most conspicuous in its development. If a catalogue of the collection has been published, may I beg that you will furnish me with a copy.

I am, sir, yours very respectfully,

A. HOWARD CLARK,

Assistant Secretary of the American Historical Association, Curator Hist. Coll., U. S. N. M.

Letters of envoy were received from the Geological Survey of India, Calcutta; Royal Society of New South Wales, Sydney; Societas pro Fauna et Flora Fennica, Helsingfors, Finland; Fondation de P. Teyler van der Hulst, Harlem, Holland; K. Danske Videnskabernes Selskab, Copenhagen; Université Royale, Lund, Sweden; Naturforschende Verein, Brünn, Austria; Verein für Erdkunde, Dresden, Saxony; Wetterauische Gesellschaft für die Gesammte Naturkunde, Hanau, Hesse; K. Sächsische Gesellschaft der Wissenschaften, Leipzig, Saxony; Gesellschaft zur Beförderung der Gesamten Naturwissenschaften, Marburg, Prussia; Naturwissenschaftliche Verein, Osnabrück, Prussia; Royal Observatory, Greenwich, England; Zoölogical Society, Meteorological Office, Statistical Society, London, England; Museum of Comparative Zoölogy, Cambridge, Mass.; Meteorological Observatory, New York; Direccion General de Estadística, Mexico, Mexico; Observatorio N. Argentino, Cordoba, Argentine Republic.

Letters of acknowledgment (Trans. xvii, 3, and xviii, 1) were received from the Geological and Natural History Survey, Ottawa, Canada; Public Library, Boston, Mass.; Museum of

Comparative Zoölogy, Cambridge, Mass.; American Antiquarian Society, Worcester, Mass.; Yale University, New Haven, Conn.; University of the State of New York, Albany; Buffalo Library; New York Historical Society; Astor Library, New York; United States Military Academy, West Point, N. Y.; New Jersey Historical Society, Newark, N. J.; Academy of Natural Sciences; Franklin Institute, Philadelphia; Smithsonian Institution, Washington, D. C.; University of California, Berkeley; State Historical Society of Wisconsin, Madison; Kansas Academy of Science, Topeka.

Letters of acknowledgment were received from the Anthropologische Gesellschaft, Profs. Franz Ritt v. Hauer, F. S. Krauss, Vienna, Austria (139); Anthropologische Gesellschaft, K. Bibliothek, Gesellschaft für Erdkunde, K. P. Meteorologische Institut, Physikalische Gesellschaft, Berlin, Prussia (139); University of Bonn (139); K. Sächsische Meteorologische Institut, Chemnitz (139); K. Sächsische Altertumsverein, Verein für Erdkunde, Dresden (139); Prof. Otto Böhtingk, Leipzig, Germany (139, 140); K. P. Geodätische Institut, Potsdam, Prussia (139); Naturwissenschaftliche Verein für Schleswig-Holstein, Kiel, Prussia (139); Verein für Vaterländische Naturkunde in Würtemberg, Stuttgart (139); Prof. Robert W. Bunsen, Heidelberg, Germany (139); Société de Geographic (131-134), Naturhistorische Gesellschaft (139), Schweizerische Naturforschende Gesellschaft, Berne (139); Prof. Carl Vogt, Geneva, Switzerland (139); Société Vaudoise des Sciences Naturelles, Lausanne (139, 140); Mr. Samuel Timmins, Arley, Coventry, England (139, 140); Philosophical Society, Cambridge, England (139, 140); Sir Rawson W. Rawson (139), Institution of Civil Engineers, London, England (131-139); Geographical Society, Manchester, England (139, 140); R. Geological Society of Ireland, Dublin (139, 140); Royal Observatory, Prof. James Geikie, Edinburgh, Scotland (139, 140); Société d'Histoire et d'Archéologie, Chalon-sur-Saone, France (137-140); Société N. des Sciences Naturelles et Mathématique, Cherbourg, France (136); Université de Lyon (139, 140); Rédaction de "Cosmos," Paris,

France (131-136, 139); Yale University, New Haven, Conn. (139); Prof. G. L. Goodall, Cambridge, Mass. (137-139); Prof. James Ellis Humphrey, Weymouth Heights, Mass. (137-140); Kentucky Historical Society, Frankfort (137); Instituto Fisico-Geografico Nacional, San Jose de Costa Rica, Central America (138); Museo Nacional, Santiago, Chile (137).

Letters of acknowledgment (140) were received from the Geological Survey, Ottawa, Canada; Université Laval, Hon. J. M. Le Moine, Quebec; Dr. Alfred R. C. Selwyn, Montreal; Canadian Institute, Toronto; Bowdoin College Library, Brunswick, Me.; Experiment Station, Orono, Me.; Society of Natural History, Portland, Me.; Prof. Charles H. Hitchcock, Hanover, N. H.; Amherst College Library, Amherst, Mass.; Marine Biological Laboratory, Massachusetts Institute of Technology, Boston; Society of Natural History, Massachusetts Historical Society, State Library of Massachusetts, Messrs. T. M. Drown, Hamilton A. Hill, Robert C. Winthrop, Boston, Mass.; Museum of Comparative Zoölogy, Prof. G. L. Goodall, Mr. Robert N. Toppan, Cambridge, Mass.; Free Public Library, New Bedford, Mass.; Rev. Edward E. Hale, Roxbury, Mass.; Essex Institute, Salem, Mass.; American Antiquarian Society, Worcester, Mass.; Rhode Island Agricultural Experiment Station, Kingston, R. I.; Providence Franklin Society, Rhode Island Historical Society, Providence; Mr. George F. Dunning, Farmington, Conn.; Hartford Theological Seminary, Connecticut Historical Society, Hartford; New Haven Colony Historical Society, Profs. O. C. Marsh, H. A. Newton, W. D. Whitney, New Haven, Conn.; Prof. James Hall, Albany, N. Y.; Society of Natural Science, Buffalo Library, Buffalo, N. Y.; Profs. T. F. Crane, B. G. Wilder, Ithaca, N. Y.; Astor Library, American Museum of Natural History, New York Historical Society, New York Academy of Medicine, New York Hospital, Profs. Joel A. Allen, Daniel Draper, Henry F. Osborn, John J. Stevenson, New York, N. Y.; Vassar Brothers' Institute, Poughkeepsie, N. Y.; Prof. W. Le Conte Stevens, Troy, N. Y.; Oneida Historical Society, Utica, N. Y.; U. S. Military Academy, West Point, N. Y.; Free Public

Library, Jersey City; New Jersey Historical Society, Newark; Profs. W. Henry Green, C. A. Young, Princeton, N. J.; Dr. Robert H. Allison, Ardmore, Pa.; Prof. Robert W. Rogers, Carlisle, Pa.; Prof. M. H. Boyé, Coopersburg, Pa.; Hon. Eckley B. Coxe, Drifton, Pa.; Dr. Traill Green, Prof. J. W. Moore, Rev. Thomas C. Porter, Easton, Pa.; Mr. Andrew S. McCreath, Harrisburg, Pa.; Prof. Lyman B. Hall, Haverford, Pa.; Mr. John Fulton, Johnstown, Pa.; Linnean Society, Lancaster, Pa.; Mr. P. F. Rothermel, Linfield, Pa.; Dr. F. A. Muhlenberg, Reading, Pa.; University of Pennsylvania, Library Company of Philadelphia, *The Medical News*, Wagner Free Institute of Science, Academy of Natural Sciences, Historical Society of Pennsylvania, Numismatic and Antiquarian Society, Mercantile Library, Admiral E. Y. Macauley, Hon. James T. Mitchell, Hon. Henry Reed, Profs. John Ashurst, Jr., E. D. Cope, F. A. Gent, Jr., H. V. Hilprecht, E. O. Kendall, J. P. Lesley, John M. Maisch, Albert H. Smyth, Drs. John H. Brinton, Persifor Frazer, George Friebis, John Marshall, George R. Morehouse, Isaac Norris, Charles A. Oliver, C. N. Peirce, W. S. W. Ruschenberger, H. Clay Trumbull, William H. Wahl, Messrs. Arthur E. Brown, R. Meade Bache, Charles Bullock, Thomas M. Cleemann, Patterson Du Bois, Robert Patterson Field, J. S. Harris, Francis Jordan, Jr., William W. Jefferis, Henry Phillips, Jr., Franklin Platt, Theodore D. Rand, J. G. Rosengarten, L. A. Scott, Talcott Williams, Charles Stewart Wurts, Mrs. Helen Abbott Michael, Philadelphia; Prof. John T. Carll, Pleasantville, Pa.; Mr. Heber S. Thompson, Pottsville, Pa.; Rev. George W. Anderson, Rosemont, Pa.; Dr. John Curwen, Warren, Pa.; Mr. Philip P. Sharples, Hon. Washington Townsend, West Chester, Pa.; Mr. William M. Canby, Wilmington, Del.; U. S. Naval Institute, Annapolis, Md.; Enoch Pratt Free Library, Baltimore, Md.; Mr. T. Leeper Patterson, Cumberland, Md.; Smithsonian Institution, U. S. Naval Observatory, Anthropological Society, U. S. Weather Bureau, U. S. Coast and Geodetic Survey, Library Surgeon-General's Office, U. S. Geological Survey, Dr. J. S. Billings, Prof. S. F. Emmons, Dr. W. J. Hoff-

[Sept. 1,

man, Prof. Charles A. Schott, Mr. W. B. Taylor, Washington, D. C.; University of Virginia, Charlottesville; Journal U. S. Artillery, Fortress Monroe, Va.; Agricultural Experiment Station, Morgantown; Prof. J. W. Mallet, University of Virginia, Va.; Agricultural Experiment Station, Raleigh, N. C.; Georgia Historical Society, Savannah; University of Alabama, Tuscaloosa; Agricultural Experiment Station, Baton Rouge, La.; Texas Academy of Science, Austin; Museo Oaxaqueño, Oaxaca de Juárez, Mex.; Observatorio Astronomico Nacional, Tacubaya, Mex.; Agricultural Experiment Station, Las Cruces, N. M.; Prof. E. W. Claypole, Akron, O.; University of Cincinnati, Cincinnati Observatory, Society of Natural Science, Cincinnati, O.; Oberlin College; Rev. Henry S. Osborn, Oxford, O.; Kentucky Historical Society, Frankfort; Dr. Robert Peter, Lexington, Ky.; University of California; Prof. Joseph LeConte, Berkeley, Cal.; Lick Observatory; Mt. Hamilton, Cal.; Prof. J. C. Branner, Palo Alto, Cal.; Prof. Daniel Kirkwood, Riverside, Cal.; Prof. George Davidson, San Francisco, Cal.; Geological Survey of Missouri, Jefferson City; Academy of Sciences, St. Louis, Mo.; Arkansas Agricultural Experiment Station, Fayetteville; Purdue Experiment Station, La Fayette, Ind.; Historical Society, Chicago, Ill.; Academy of Natural Sciences, Davenport, Ia.; State University of Iowa, Iowa City; Wisconsin State Historical Society, Madison; Agricultural Experiment Station, Lincoln, Neb.; State Agricultural College, Manhattan, Kans.; Academy of Sciences, State Historical Society, Washburn College, Topeka, Kans.; Agricultural Experiment Station, St. Anthony Park, Minn.; Tacoma Academy of Science, Tacoma, Wash.

Letters of acknowledgment (141) were received from Dr. Charles B. Dudley, Altoona, Pa.; Dr. Robert H. Alison, Ardmore, Pa.; Prof. James E. Rhoads, Bryn Mawr, Pa.; Dr. Charles F. Himes, Carlisle, Pa.; Prof. Martin H. Boyé, Coopersburg, Pa.; Hon. Eckley B. Coxe, Drifton, Pa.; Drs. Traill Green, J. W. Moore, Thomas C. Porter, Easton, Pa.; Mr. Andrew S. McCreath, Harrisburg, Pa.; Mr. John Ful-

ton, Johnstown, Pa.; Linnean Society, Lancaster, Pa.; Numismatic and Antiquarian Society, Historical Society of Pennsylvania, Academy of Natural Sciences, Library Company of Philadelphia, Hon. Joseph Allison, Prof. John Ashhurst, Jr., Messrs. R. Meade Bache, Henry C. Baird, Cadwalader Biddle, Patterson Du Bois, Jacob B. Eckfeldt, Robert P. Field, Dr. Henry Hartshorne, Prof. H. H. Houston, Messrs. William A. Ingham, E. V. d'Invilliers, Francis Jordan, Jr., Prof. J. P. Lesley, Dr. John Marshall, Mrs. Helen Abbott Michael, Drs. Isaac Norris, Charles A. Oliver, C. N. Peirce, William Pepper, Messrs. Franklin Platt, Theodore D. Rand, J. G. Rosengarten, Dr. W. S. W. Ruschenberger, Prof. Benjamin Sharp, Rev. H. Clay Trumbull, Prof. James Tyson, Messrs. W. P. Tatham, D. K. Tuttle, Samuel Wagner, Philadelphia; Prof. John F. Carll, Pleasantville, Pa.; Mr. Heber S. Thompson, Pottsville, Pa.; Rev. F. A. Muhlenberg, Reading, Pa.; Dr. W. H. Appleton, Swarthmore, Pa.; Philosophical Society, Mr. Philip P. Sharples, Hon. Washington Townsend, Prof. J. T. Rothrock, West Chester, Pa.

Accessions to the Library were reported from the Government Geologist, Adelaide, Australia; Royal Society of N. S. Wales. Hon. Arthur Renwick, Sydney; New Zealand Institute, Wellington; Tokyo Library, Tokyo, Japan; Madras Observatory, Madras, India; R. Asiatic Society (China Branch), Shanghai, China; Societatea Geographica Româna, Bucuresci; Societates pro Fauna et Flora Fennica, Helsingfors, Finland; Société Physico Mathématique, Kasan, Russia; K. Mineralogische Gesellschaft, Comité Géologique, Bibliothèque Géologique, Société de Géographie, Prof. Serge Nikitin, St. Petersburg, Russia; K. Norsk. Oldskrift Selskab. K. Danske Videns-Rabernes Selskab, Copenhagen, Denmark; Bataviaasch Genootschap van Kunsten en Wetenschappen; Friesch Genootschap van Geschied, etc., Leeuwarden, Friesland; Musée Teyler, Haarlem, Holland; Academie R. de Belgique, Société R. Malacologique de Belgique, Bruxelles; Naturforschende Verein, Brünn, Austria; K. K. Sternwarte, Prag, Bohemia; I. R. Accademia degli Agiati, Roveredo, Tyrol; K. P.

Geologische Landesanstalt und Bergakademie, Berlin, Prussia; Verein für Schlesische Insektenkunde, Breslau, Prussia; Sächsische Meteorologische Institut, Chemnitz, Saxony; Naturwissenschaftliche Gesellschaft "Isis," Verein für Erdkunde, Dresden, Saxony; K. Gesellschaft der Wissenschaften, Göttingen, Prussia; Wetterauische Gesellschaft für die gesammte Naturkunde, Hanau a.-M.; Gesellschaft zur Beförderung der gesammten Naturwissenschaften, Marburg, Prussia; Bayerische Botanische Gesellschaft, Munich, Bavaria; Dr. P. Steiner, Neuwied, Germany; Naturwissenschaftliche Verein, Osnabrück, Prussia; Verein für Vaterländische Naturkunde in Würtemberg, Stuttgart; Commission Internationale de la carte Geologique d'Europe, Prof. E. Renevier, Lausanne, Switzerland; Société Neuchâteloise de Geographie, Neuchâtel, Switzerland; R. Accademia di Scienze, etc., Modena, Italy; Accademia dei Lincei, Prof. Giuseppe Sergi, Rome, Italy; Société Linnéene, Bordeaux, France; Société Langueodocienne de Géographie, Montpellier, France; Prof. Dr. Jules Oppert, Paris, France; Société de Géographie, Lisbon, Portugal; Philosophical Society, University Library, Cambridge, England; Royal Polytechnic Society, Cornwall, England; Philosophical and Library Society, Leeds, England; Zoölogical Society, Meteorological Office, Linnean Society London, England; Natural History and Antiquarian Society, Penzance, England; Université Laval, Quebec, Canada; Nova Scotia Institute of Science, Halifax; Agricultural Experiment Station, Bangor, Me.; Massachusetts Institute of Technology, American Philological Association, Massachusetts Historical Society, Capt. J. W. Norcross, Miss Cornelius Horsford, Boston, Mass.; Astronomical Observatory of Harvard College, Museum of Comparative Zoölogy, Cambridge, Mass.; Essex Institute, Salem, Mass.; Rhode Island Historical Society, Providence; Connecticut Historical Society, Hartford; Yale University, American Oriental Society, New Haven, Conn.; Albany Institute, Albany, N. Y.; Buffalo Library, Buffalo, N. Y.; Hamilton College, Clinton, N. Y.; Academy of Sciences, Meteorological Observatory, American Geographical Society,

Profs. J. A. Allen, Isaac H. Hall, Mr. Cortland F. Bishop, New York, N. Y.; Mr. William John Potts, Camden, N. J.; Free Public Library, Jersey City, N. J.; American Chemical Society, Easton, Pa.; Pennsylvania State Weather Service, Zoölogical Society, Pennsylvania Hospital, Prof. George F. Barker, Dr. D. G. Brinton, Prof. E. D. Cope, Messrs. Herbert Welsh, Joseph Wilcox, Philadelphia; Peabody Institute, Baltimore, Md.; Departments of Labor, Agriculture, U. S. National Museum, Messrs. J. W. Fewkes, Lester F. Ward, Washington, D. C.; Leander McCormick Observatory, Charlottesville, Va.; Virginia Historical Society, Richmond; Agricultural Experiment Station, Raleigh, N. C.; Col. Charles C. Jones, Augusta, Ga.; Geological Survey of Arkansas, Little Rock; Agricultural Experiment Station, Knoxville, Tenn.; Geological Survey of Texas, Austin; University of California, Berkeley; Mercantile Library Association, San Francisco, Cal.; University of Cincinnati; Archæological and Historical Society, Columbus, O.; Academy of Natural Sciences, Davenport, Ia.; Washburn College, Topeka, Kans.; Observatorio Astronomico N. de Tacubaya, Chapultepec, Mex.; Direccion General de Estadistica, Mexico, Mex.; Direccion General de Estadistica, Guatemala, C. A.; Observatoria N. Arjentino, Buenos Aires, S. A.; Museo Nacional, Santiago de Chile, S. A.

The following donations to the Cabinet were received:

A photo-lithographic copy of the certificate of membership of the American Philosophical Society of Robert Stettle Jones, presented by his grandson, Robert J. Fisher, Washington, D. C.

A phototype (framed) of the old "Liberty Bell," presented by Mr. F. Gutekunst, Philadelphia.

Photographs for the Society's Album were received from Dr. Isaac H. Hall, New York; Mr. Henry C. Baird, Dr. Charles A. Oliver, Philadelphia; Dr. F. A. Muhlenberg, Reading, Pa.

The following deaths were announced:

Anthony J. Drexel (Philadelphia), died June 30, 1893, æt. 60.

Col. C. C. Jones (Augusta, Ga.), died July 19, 1893, æt. 62.
Robert Cornelius (Philadelphia), died August 10, 1893,
æt. 84.

Prof. William H. C. Bartlett (Yonkers, N.Y.), died May 11, 1893.

The President was authorized to appoint a suitable person to prepare the usual obituary notice of Mr. Cornelius.

List of deficiencies, part third, was laid before the Society.

The University of Missouri wrote that its Library had been destroyed by fire, and requesting that certain of the Society's Proceedings should be replaced.

On motion the matter was referred to the Librarian with power to act.

And the Society was adjourned by the presiding member.

Stated Meeting, September 15, 1893.

Prof. ALBERT H. SMYTH in the Chair.

Letters of acknowledgment were received from the Observatoire Phys. Central de Russie, St. Petersburg (139); Taschkent Observatory, Taschkent, Turkestan (13¹); Societas pro Fauna et Flora Fennica, Helsingfors, Finland (136-138); K. Norske Videnskabernes Selskab, Throndhjem, Norway (1 9); K. Universitetet, Lund, Sweden (139); K. Svenska Vetenskaps Akademien, Stockholm, Sweden (140); Société Royale de Géographie, Antwerp, Belgium (139); K. Zoologisch Genootschap "Natura Artis Magistra," Amsterdam, Netherlands (140); Colonial Museum, Fondation de P. Teyler vander Hulst, Harlem, Holland (139, 140); K. Bibleotheek, The Hague, Holland (139, 140); K. K. Sternwarte, Prag, Bohemia (139, 140); Anthropologische Gesellschaft (137, 138); K. K. Central Anstalt für Meteorologie und Erdmagnetismus (140); Profs. Friederich Müller (140), Gustav Tschermak (136-139), Vienna, Austria; K. Preuss. Geol. Landesanstalt und Bergakademie,